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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,212	02/28/2007	Shunsuke Amano	293329US3PCT	6783

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

PEREIRO, JORGE ANDRES

ART UNIT	PAPER NUMBER
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3743

NOTIFICATION DATE	DELIVERY MODE
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03/01/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/588,212	Applicant(s) AMANO ET AL.	
	Examiner JORGE PEREIRO	Art Unit 3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-11 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

1. Figures 5 and 6, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having no stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions.
2. Figures 7, 8, 11, 12, 21, 22A, and 22B, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions.
3. Figures 9 and 10, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions; and further still comprising auxiliary air inflow ports formed on a closed end of said annular container.
4. Figure 16, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; and further still comprising a back flow type inflow casing.

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5. Figures 17 and 18, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; and further still comprising an inflow casing introducing air perpendicular to the central axis of said combustion apparatus.
6. Figures 19 and 20, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions; and further still comprising a plurality of fuel nozzles.
7. Figure 23, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions; and further still wherein a closed end of said annular container is curved.
8. Figure 24, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions; and further still comprising auxiliary air inflow ports formed on an outer cylindrical portion near a closed end of said annular container.
9. Figure 25, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air

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inflow portions; and further still comprising a plurality of guide vanes on an inside surface of a closed end of said annular container.

10. Figure 26, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions; and further still comprising a plurality of guide vanes on an inner surface of an outer cylindrical portion near a closed end of said annular container.
11. Figure 27, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions; and further still wherein a closed end of said annular container is curved; and further yet comprising a plurality of curved guide vanes extending along an inner curved surface of said closed end of said annular container.
12. Figure 28, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions; and further yet comprising a plurality of spiral guide vanes on an inside surface of a closed end of said annular container.
13. Figure 29, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions; and further still comprising a plurality of guide vanes on an inner

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surface of an outer cylindrical portion near a closed end of said annular container which are deformed such that a portion of each guide vane is inclined along an inner wall of the outer cylindrical portion of the annular container while another portion of each guide vane is directed to intercept the closed end of said annular container at an acute angle.

14. Figure 30, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; and further still wherein a closed end of said annular container is curved; and an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions; and further still comprising a plurality of guide vanes on an inner surface of an outer cylindrical portion near a closed end of said annular container which are deformed such that a portion of each guide vane is inclined along an inner curved wall of the outer cylindrical portion of the annular container while another portion of each guide vane is directed to intercept the closed end of said annular container at an acute angle.

15. Figure 31, drawn to a combustion apparatus comprising an air swirler and further comprising an annular container having a stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions; and a first fuel nozzle located on a closed end of said annular container; and a second fuel nozzle located on an inner surface of an outer cylindrical portion of said annular container.

16. Figures 32 and 33, drawn to a combustion apparatus comprising an air swirler and further comprising a first and second annular container separated by a constricted portion housing said swirler; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions located on the constricted portion and an outer surface of the second annular container; and a first fuel nozzle located on a closed end of said annular container.
17. Figure 34, drawn to a combustion apparatus comprising an air swirler and further comprising a first and second annular container separated by a constricted portion housing said swirler; wherein the first annular container has curved walls and the second annular container has straight walls; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions located on the constricted portion and an outer surface of the second annular container; and a first fuel nozzle located on a closed end of said annular container.
18. Figure 35, drawn to a combustion apparatus comprising two air swirlers and further comprising a first and second annular container separated by a constricted portion housing said swirlers; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air inflow portions located on the constricted portion and an outer surface of the second annular container; and a first fuel nozzle located on a closed end of said annular container.
19. Figures 36 and 37, drawn to a combustion apparatus without any swirler, comprising an annular container having a stepped structure; an inflow casing introducing air parallel to the central axis of said combustion apparatus; and air

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inflow portions; one of said air inflow portions located on said step and another of said air inflow portions located on an inside surface of said annular container; and a first fuel nozzle located on a closed end of said annular container.

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

The claims are deemed to correspond to the species listed above in the following manner:

- Claim 1 is generic and corresponds to all of the species;
- Claim 2 corresponds to all of the species except for species 19;
- Claim 3 corresponds to all of the species except for species 19;
- Claim 4 corresponds to species 5;
- Claim 5 corresponds to species 5;
- Claim 6 corresponds to all of the species except for species 5;
- Claim 7 corresponds to species 3;
- Claim 8 corresponds to species 8;

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- Claim 9 corresponds to species 9-14;
- Claim 10 corresponds to species 9-14;
- Claim 11 corresponds to species 15;

The following claim(s) are generic: Claim 1.

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: The species lack the same or corresponding special technical features because the species have non-obvious mutually exclusive characteristics and claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JORGE PEREIRO whose telephone number is (571) 270-3932. The examiner can normally be reached on Mon.-Fri. 9:00 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Rinehart can be reached on 571-272-4881. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jorge Pereiro
Examiner
Art Unit 3743

/Kenneth B Rinehart/
Supervisory Patent Examiner, Art Unit 3743